April 6, 2021

Ms. Jeanne Kiddoo
Chair, Broadband Data Task Force
Federal Communications Commission
45 L Street, N.E.
Washington, D.C. 20554

WC Docket No. 19-195

Dear Ms. Kiddoo:

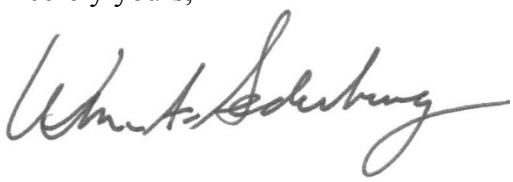
I am writing to share with you our experience in Buncombe County, NC in creating better broadband maps. Our fundamental finding is that 10-15% of the public does not have access to high speed broadband, in an area defined as "not eligible for federal funding" because we are not "rural." We reach this conclusion through the efforts of the WNC Broadband Project which is affiliated with UNC Asheville and is a non-partisan, non-provider funded, non-ideological voice for average citizens.

WNC Broadband Project has been instrumental in identifying the need for and then creating more accurate maps for Buncombe County, North Carolina, because FCC and state maps did not accurately identify areas unserved by modern broadband service. With the help of Stagg Newman, ex-FCC Division Chief in OET and Chief Technologist, and Greg Vogt, ex-FCC attorney in various management positions, WNC Broadband Project, in partnership with UNCA's National Environmental Modeling and Analysis Center (NEMAC) has developed the attached description of our current mapping efforts. I believe you will find it of interest.

Buncombe County is a unique area of the country that has urban locations, but also has many unserved locations which resulted from inadequate buildout by major broadband providers. The telephone companies quit modernizing their DSL plant and the cable companies were not required to build into unserved areas, resulting in a "swiss cheese network" with over 10,000 unserved households, around 10% of the households. Failure to buildout to these unserved areas is caused in large part because of the high cost of serving residences and businesses in our mountainous and forested terrain. Our area illustrates the market failure of the '96 Telecom Act in almost exclusively focusing on services outside of urban areas, exacerbated in NC because of the lack of federal Internet service obligations for telecommunications providers and the removal of local franchising for cable companies.

We look forward to helping the FCC develop accurate maps once the agency seeks input from other reliable sources. In the meantime, if there are any questions we can answer or in other ways assist in the FCC's mapping effort, please let our group know.

Sincerely yours,



William A. Sederburg
WNC Broadband Project
wsederburg@gmail.com

cc: Stagg Newman, lsnewmanjr@yahoo.com
Greg Vogt, gvogt@vogtlawfirm.com

April 6, 2021

Western North Carolina Broadband Mapping Needs

We are encouraged that the Federal Communications Commission is actively working on broadband maps that can accurately identify locations in the country where modern broadband services are not available. However, the FCC's historic emphasis on defining high need areas for broadband funding needs to be amended to include unserved or underserved areas within populated communities. This is particularly a problem in mountainous regions like Western North Carolina. The new mapping should clearly identify that need, just as we have found in a special project for Western North Carolina.

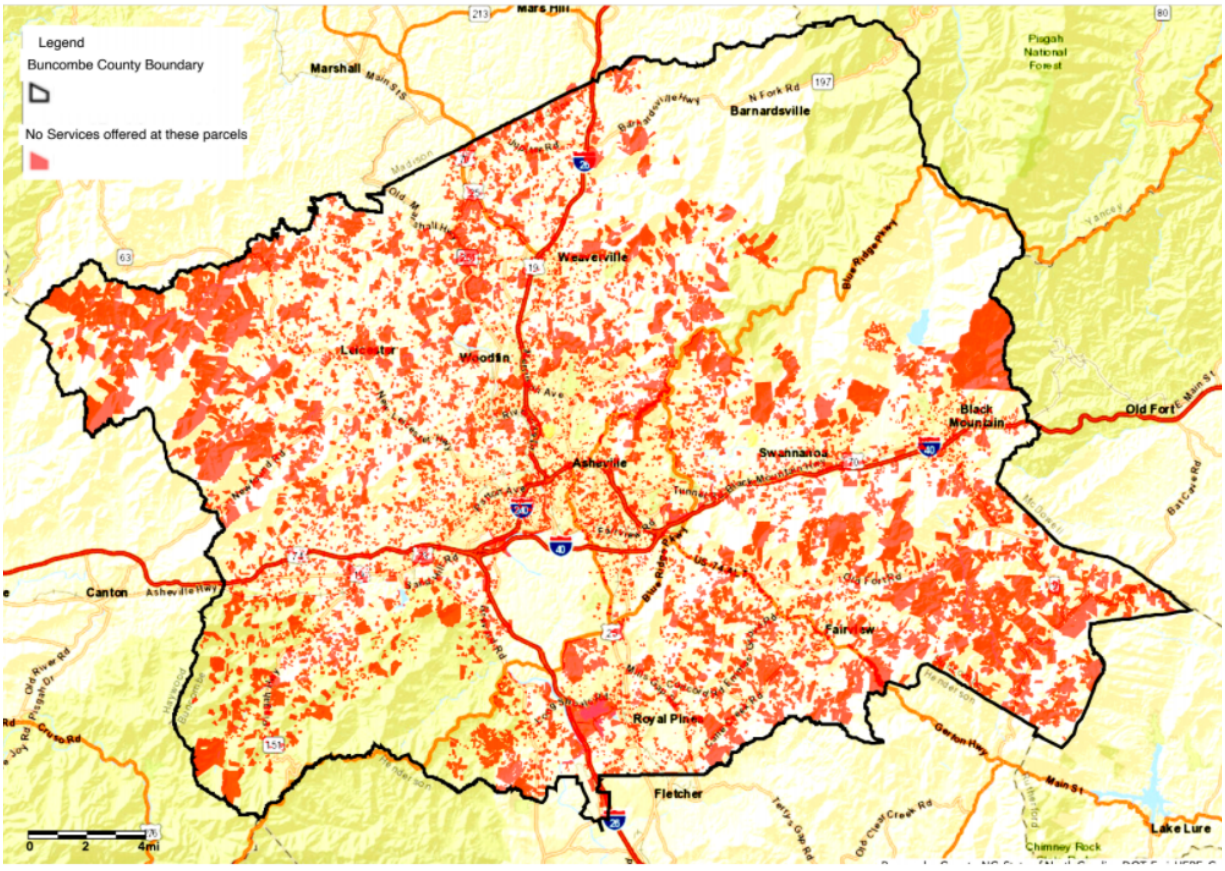
In 2020 we created the WNC Broadband Project in partnership with UNC Asheville to be a non-partisan, non-provider, non-ideological voice for the citizens of the area. The WNC Broadband Project (www.wncbroadband.org) supports counties and communities in Western North Carolina in their efforts to obtain access to reliable, truly high-speed internet service. The WNC Broadband Project develops tools to empower individuals, communities, and area leaders in advocating effectively for their digital needs. The Project advocates for an inclusive broadband strategy and future-proof infrastructure that provides affordable fixed and mobile high-speed Internet services for all. A major part of the Project's work includes its existing mapping effort in Western North Carolina described below.

Like all Americans, all North Carolinians need a "future proof" broadband infrastructure for both economic development and digital inclusion.* Today many geographic areas in NC lack "future proof" broadband infrastructure, and thus are falling further behind many urban areas. "Future proof" broadband infrastructure must provide high speed fixed services to homes and business locations as well as advanced mobile services for people on the move. We believe the minimum requirements of a "future proof" infrastructure for fixed services today are:

- **Fixed Residentia**l: 100 x 10 Mbps; **Fixed Commercial**: 100 x 100 Mbps; **Mobile Residential** 25 x 3 Mbps; **Mobile Commercial**: 25 x 25 Mbps.
- **Latency:** less than 70 milliseconds latency today; less than 25 milliseconds within 5 years.
- **Technical Sustainability:** Doubling of speed every 3 years with only minor capital expenditures.
- **Availability of Unlimited Data Cap/Usage for fixed; Prioritization plans for Mobile.**

A major finding of our work is that the lack of broadband infrastructure is not just a rural problem. The problem exists in many areas in urban, suburban, and exurban regions. For example, data suggest that over 15,000 households and businesses do not have access to modern broadband infrastructure in Buncombe County, NC. The is over 10% of Buncombe's 125,000 household and business locations and more than all of the broadband connections that do not meet modern performance criteria in many rural NC counties. Buncombe County is likely typical of many NC counties. The single biggest reason for this situation is that modern cable networks do not serve all of the homes in these geographically expanding counties, and with limited exceptions the telco's have ceased modernizing their DSL deployments, leaving the DSL-only locations unserved because the service does not meet the current FCC definition of broadband and are far behind the developed networks in the U.S.

The map below illustrates the problem by identifying unserved and underserved areas in Buncombe County. The map shows the significant areas where Buncombe County residents do not receive adequate broadband service, which is not reflected in current FCC broadband maps.



The mapping project represented by this map used publicly available information to create a map of the high-speed residential Internet services offered in the county that met the standards identified above. Dave Michelson of the National Environmental Modeling Analysis Center (NEMAC), an applied research center of the University of North Carolina-Asheville, led the mapping project, which was sponsored by WNC Broadband. The map above was used in the

Buncombe County request for proposal for High Speed Internet Service to inform service providers of the unserved areas in the county. The team at NEMAC can work with other local and state governments upon request.

We started with citizen input. From Land of Sky and WNC Broadband surveys we had identified potential unserved areas according to the criteria above. The COVID-19 pandemic, which created the need for remote work and remote education, led to many citizens contacting government and business leaders about their inability to obtain adequate broadband. Political leaders asked citizens to contact our team about the state of broadband service offers in their neighborhoods. This information provided the starting point.

We analyzed the service offers of the facility-based residential broadband service providers in the county from the publicly available information on their websites. No terrestrial nor satellite wireless providers had standard advertised retail offers of >100 Mpbs. We then focused on the service offerings of the wired facility-based providers in the county for residential broadband high speed Internet service: AT&T, Charter, French Broad EMC (FBEMC), Frontier, and RiverStreet. We started with maps that showed franchised areas and maps provided the service providers on their web sites when available. Charter offers >100 Mbps service throughout the county but not everywhere, using Hybrid Fiber Coax DOCSIS technology. Frontier only offers <25 Mbps DSL copper twisted pair based service and does not offer any >100 Mbps residential service in Weaverville and surrounding areas. FBEMC offers >100 Mbps service, using fiber-to-the-home in one section of northwest Buncombe County. RiverStreet offers >100 Mbps in part of the former Barnardsville Telephone Service's franchised area in the north central part of the county, using fiber-to-the-home. RiverStreet provides DSL service (<100 Mpbs) in the rest of that franchised area. AT&T offers >100 Mbps service, using fiber-to-the-home technology in limited areas. To the best of our knowledge, ATT only offers >100 Mbps residential service in areas where Charter also offers >100 Mbps residential service. We consider both fiber-to-the-home and HFC DOCSIS technology as meeting the "technical sustainability" criteria.

The project team then used publicly available information from the service provider web sites to identify what parcels were served and not served. The team first queried data bases manually. In some cases, we called the service provider when the response was not definitive as to service availability. The team then developed an app that queried the data bases automatically. Queries were made for all parcels in the county GIS data bases that indicated a residence or commercial building. The responses were then categorized as no service, undetermined, or service offered. Groups of parcels with no service were colored orange on the maps in a GIS shapefile. The areas that had service or were undetermined were not colored on the map. We also identified areas that did not need residential broadband service such as national forests, the Blue Ride Parkway national park corridor, the Asheville Watershed, and the Biltmore Estate. Those areas are also not colored on the map.

Note that the data is based on the data provided by service providers. Therefore, any inaccuracy in their data bases will be reflected in the maps. We invited all service providers in

Buncombe County to provide corrections to the map. Thus far, we have received no corrections.

From this data, it is clear that Western North Carolina has significant "pockets" of no or underserved areas that are not defined as rural. As more precise mapping is completed, we expect many parts of America will reach the same conclusion.

Conclusion: WNC has been short-changed in recent federal programs because of the federal emphasis on funding rural areas. *Federal programs must focus on all unserved areas in America, not just rural America, where much of the problem is in the process of being solved. We look forward to working with the FCC in sharing our mapping experience and assisting the FCC in helping rectify this shortcoming.* The FCC's new broadband maps will help considerably.

*Digital Inclusion includes availability, affordability, and education to promote digital awareness. This note only addresses the availability of broadband infrastructure.